PUBLIC POWER

VITAL • RESILIENT • OUTSTANDING

MMWEC

MASSACHUSETTS MUNICIPAL
WHOLESALE ELECTRIC COMPANY

Public Energy Partners

2016 ANNUAL REPORT

—Municipal utilities have been part of the Massachusetts electric industry for more than a century, and they are a vital part of its future.

MMWEC
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LETTER FROM MANAGEMENT

From time to time there is public discussion and debate about the differences between public and private electric utilities and the benefits they deliver to consumers. In Massachusetts, the public utilities are the non-profit, consumer-owned municipal electric utilities, which are supported by MMWEC, a non-profit, public corporation and political subdivision of the Commonwealth.

These discussions usually focus on the basic elements of electric service, reliability and rates, which differ among public and private utilities for many reasons. The fundamental reason is the difference in the public and private utility business models. Municipal utilities operate under a business model that is based upon not-for-profit operation and local control over decisions affecting the cost and quality of electric service. Private utilities must earn a profit to pay stockholders and are governed by laws and regulations that generally do not apply to municipal utilities.

With Massachusetts at the forefront of efforts to reduce carbon emissions, some believe that increased regulation of municipal utilities will move the Commonwealth closer to achieving its goals. This has raised debate to a higher level, with laws and regulations proposed to subject municipal utilities to requirements heretofore applicable only to private utilities.

Such proposals fail to recognize the dynamics of the public power business model and would compromise the ability of municipal utilities to maintain the high quality service they are known to provide. Among other issues, most municipal utilities have entered into long-term contracts that make it difficult or impossible to meet the proposed requirements without undue expense or harm to their customers.

There are many dimensions to the value of municipal utilities, which are integral parts of the communities they serve and set the standards for quality and cost of electric service in Massachusetts. There is ample evidence that a mix of public and private enterprise in providing electric service is beneficial for the Commonwealth and its electric consumers.

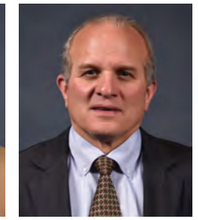
Municipal utilities have been part of the Massachusetts electric industry for more than a century, and they are a vital part of its future.

Municipal utilities are resilient in their ability to adapt to changes in the electric industry, using a business model that is responsive to customers and focused on low-cost, reliable service.

Municipal utilities have an outstanding record of service and have demonstrated their commitment to supporting the energy and environmental goals of the Commonwealth.

In this year's annual report, MMWEC provides some background on the public power business model and offers some examples of its work with member utilities. It will help to show how and why municipal utilities are a vital, resilient and outstanding part of the electric industry in Massachusetts.





Peter D. Dion, MMWEC President
Michael J. Flynn, Chairman of the Board and Gubernatorial Appointee
Ronald C. DeCurzio, Chief Executive Officer and Secretary

VITAL

THE PUBLIC POWER
BUSINESS MODEL AND MMWEC

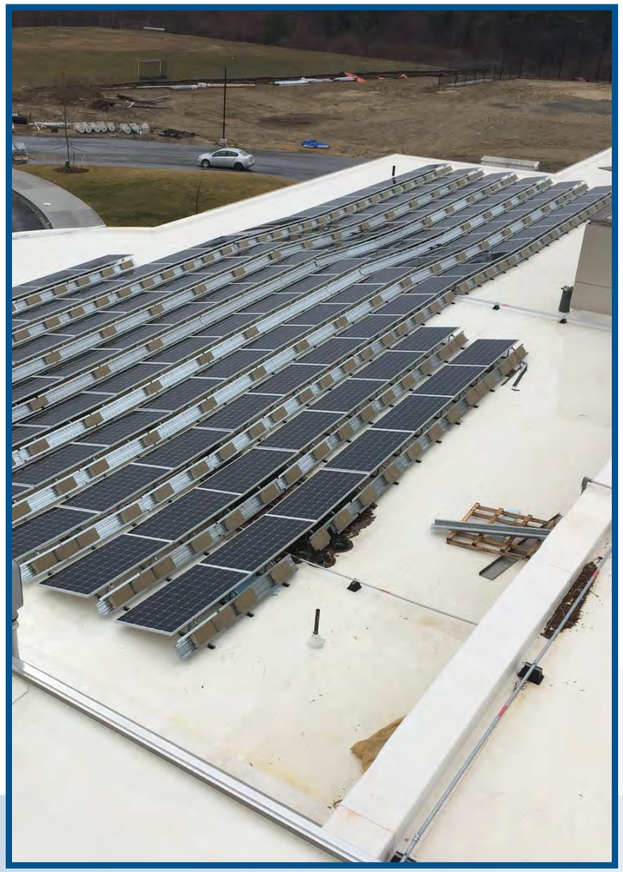
The public power business model has enabled municipal utilities to set the standard for quality, economic and reliable electric service for more than a century.

Publicly owned and operated, municipal utilities exist for the citizens of the communities they serve. They are locally and independently governed in a way that best serves customers and the community. Their not-for-profit structure is enhanced by their association with MMWEC, which can issue tax-exempt bonds to finance a wide variety of energy facilities. With no stockholders to pay, municipal utility funds are re-invested locally to maintain infrastructure, ensure rate stability and provide long-term, reliable service. Municipal utilities deliver many ancillary benefits to the communities they serve, making payments in lieu of taxes or providing other in-kind services that support local government and community activities.

Municipal utilities in Massachusetts began cementing their long track record of reliable service more than a century ago. Over the decades, the quality of service experienced by municipal utility customers has been especially appreciated following major storms that bring instability to the electric grid. In such times, municipal utilities often are the first to get the lights back on if customers lose power at all.

Formed in 1969 as the joint action agency for Massachusetts municipal utilities, it was a 1975 act of the Massachusetts legislature that established MMWEC as a not-for-profit public corporation and political subdivision of the Commonwealth, empowered to issue tax-exempt bonds to finance a broad range of energy resources. Today, MMWEC provides its members with a variety of services, including power supply planning and management; resource development and financing; risk management; and wholesale power market representation.

Using its tax-exempt financing authority, supported by long-term contracts with its project participant utilities, MMWEC has issued more than $4.7 billion in bonds to finance and refinance its approximate 750-megawatt ownership in various New England power plants. These include the flagship Stony Brook power plant in Ludlow and the state's second largest wind farm on Brodie Mountain in Hancock, Mass. All but $56 million of the debt has been retired.



Holden Municipal Light Department has solar PV systems on four town buildings, including the Mountview Middle School

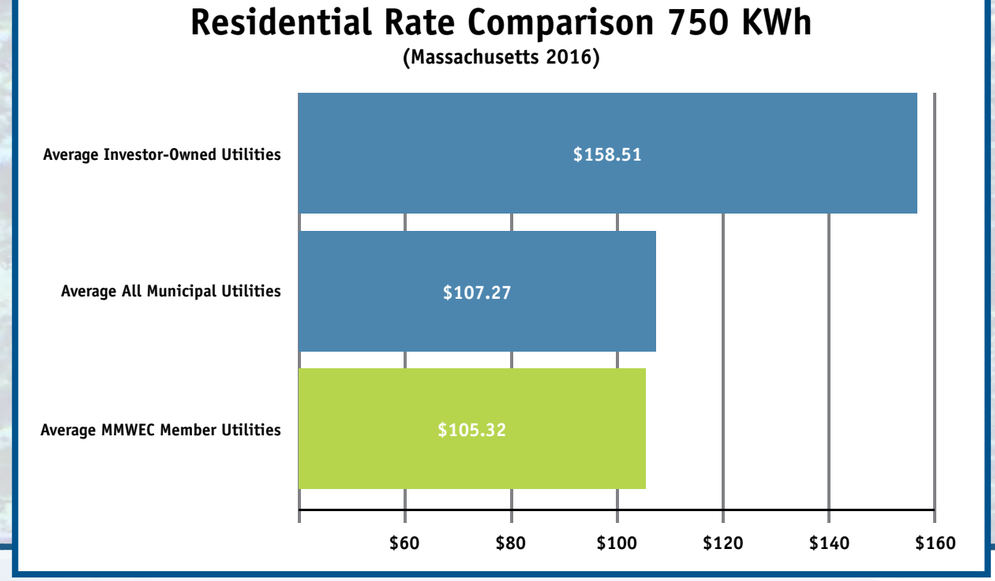
THE BENEFITS
OF PUBLIC POWER

There are several differences in the structure and operation of municipal utilities and investor-owned utilities. While municipal utilities are self-governed, IOUs are state-regulated. Because they operate as non-profit entities, municipal utilities use all customer payments to provide low-cost electric service or invest in the local community in other ways. The autonomy enjoyed by municipal utilities includes local decision-making authority when it comes to rates and service. While differences exist, the mix of public power and investor-owned utilities in Massachusetts has effectively fulfilled an essential service to residents for decades.

Self-governance often means less red tape for developers. This includes a more coordinated and streamlined development process, expedited and low-cost electrical interconnections, and debt financing. Low electric rates and other benefits can attract new businesses and invite commercial development to municipal utility communities.

Vertical integration allows municipal utilities to own and enter into long-term contracts for power, resulting in increased reliability and price stability. Nationally, public power utility rates are, on average, 13 percent lower than the rates of investor-owned utilities.

The local control and decision-making afforded to municipal utilities means each one is unique. Their power supplies and resource mix vary greatly. Recent efforts to require greater use of non-carbon, renewable energy resources fail to recognize this uniqueness. Municipal utilities have long-term power supply contracts in place, unlike investor-owned utilities, which replenish their power supply every six months to a year and therefore have more flexibility to accommodate changing regulatory mandates. Mandates could conflict with long-term municipal utility commitments and unduly increase costs, thereby compromising their ability to continue to provide the reliable, competitively priced electric service that has won them such praise throughout their history.



RESILIENT

THE EVOLVING ELECTRIC INDUSTRY

Emerging technologies and concern about climate change are presenting opportunities for customers to monitor and control their use of electricity while reducing their carbon footprint. More people are using solar, battery and other technologies in their homes to generate and store their own electricity.

More broadly, energy policy is shifting to provide out-of-market support to non-carbon energy resources, including wind, solar, hydro and in some cases nuclear energy. Integrating these resources into existing wholesale power markets is complex and raises new questions about the cost and reliability of electric service. MMWEC is participating in a New England Power Pool process called Integrating Markets and Public Policy that is intended to address some of these questions.

Meanwhile, there are growing concerns in the region about the capability of pipelines to supply enough natural gas to meet the needs of electric generators during peak periods, posing a threat to reliability of the electric grid. These concerns are amplified by difficulties associated with siting and permitting new pipelines.

In Massachusetts, the state released its "State of Charge" report in 2016, detailing the benefits of increasing energy storage capabilities. While the report contemplates the addition of 600 megawatts of storage by 2025, the state plans to set targets for energy storage later this year. MMWEC is working with member utilities interested in applying for state grants to fund energy storage projects.

In recognition of the public power business model, the state Department of Energy Resources (DOER) is working with MMWEC and other municipal utilities to develop a new solar incentive for municipal utility customers. In addition, the state Department of Environmental Protection has proposed regulations that would subject municipal utilities to a new Clean Energy Standard and would impose declining emissions caps on Massachusetts power plants, including MMWEC's Stony Brook plant.

The Federal Energy Regulatory Commission also is considering rules to integrate storage and emerging technologies into the wholesale electric markets. MMWEC has informed the FERC of its concerns related to treatment of these resources, which impact the operation of local distribution systems.

In these and other forums where challenges to the public power business model exist, MMWEC is working to protect the rights and interests of its member and project participant utilities.

SUPPORT FOR CLEAN ENERGY
CLIMATE CHANGE GOALS

The power portfolio of the MMWEC member utilities shows clearly that municipal utilities have embraced the Commonwealth's clean and renewable energy goals without a mandate to do so. MMWEC members' power supply is nearly 50 percent carbon-free, with a mix of wind, hydro, solar and nuclear generation. As compared to the region as a whole, the MMWEC power supply is about 40 percent cleaner than generating resources serving New England.

- Wind – MMWEC members own approximately 25 megawatts of wind generation, representing nearly a quarter of all wind generation in Massachusetts. This is in addition to energy from the Hancock Wind Project in Maine, which began operating in December 2016. Under a 25-year contract, this 37.5 MW resource is increasing the amount of wind energy owned or under contract by MMWEC and its Members to 63.5 megawatts – enough to power more than 25,000 homes.

- Solar – Solar projects with approximately 25 megawatts of capacity were located in MMWEC service territories as of 2016. Up to an additional 18 megawatts are projected to come online in 2017.

- Emerging Technologies/Distributed Generation Initiative – Through this program, MMWEC is assisting members with integrating these new resources into their distribution systems. This includes help pursuing grant opportunities, from the application process to financing, along with coordinating energy efficient street light purchases and determining feasibility of other innovative technologies.

- Energy Efficiency – MMWEC has been running energy efficiency programs since 1988, helping thousands of families across the Commonwealth save on energy use. The Home Energy Loss Prevention Service (HELPS) program provides homeowners with a free home energy audit and a host of rebates on efficient appliances, insulation and new heating systems. The Green Opportunities (GO) program provides similar benefits to commercial and industrial customers in municipal utility service territories. These two programs have resulted in significant energy and cost savings.

The Berkshire Wind Power Project

OUTSTANDING

LEADING THE WAY

- Sterling Municipal Light Department – The Sterling Municipal Light Department owns the first utility-scale energy storage facility in Massachusetts and the largest battery installation of its kind in New England in terms of energy capability. This project, commissioned in 2016, enables the Sterling utility to operate its system more efficiently while providing up to 12 days of backup power to the town's police station and dispatch center.
- West Boylston Municipal Light Plant - A new community solar project, operated by the West Boylston Municipal Light Plant, was completed in 2016. The 6,500-panel project, installed on the town's capped landfill, enables residents without solar capability to participate in a renewable energy initiative.
- LED streetlight grant - MMWEC received a $2.9 million grant under the DOER LED Street Lighting Accelerator Program on behalf of 16 member utilities. Grant funds are being used to purchase more than 20,000 street light fixtures and up to 9,000 controllers. This initiative is expected to reduce energy costs for participating systems by more than $800,000 a year.
- Paxton Municipal Light Department/Ashburnham Municipal Light Plant - MMWEC helped the municipal utilities in Paxton and Ashburnham secure DOER grants to study whether a microgrid and/or a resilient energy storage system are viable clean energy options in their communities. Paxton is studying whether current generation assets inside the grid are capable of serving power needs during an emergency. Ashburnham also is looking for resiliency of key resources in addition to addressing the issue of saturation of renewables within the system, which hosts 4.2 MW of solar capacity.

Municipal utility and state officials were among those attending the groundbreaking ceremony for the Sterling Municipal Light Department's battery storage project, the first utility-scale energy storage facility in Massachusetts.

LEADING THE WAY

West Boylston Municipal Light Plant's new community solar project on the town's capped landfill

- Holyoke Gas & Electric Department - In Holyoke, two new solar projects with a combined 1,635 megawatt hours of projected output went online in December 2016. Four additional solar projects were connected to the grid in early 2017, adding another 10,600 megawatt hours of projected output. Combined with hydroelectric and nuclear resources, HG&E's portfolio is over 90 percent carbon-free.

- Chicopee Electric Light Department - The Chicopee Electric Light Department continues to expand its solar portfolio. Two new solar projects will begin commercial operations in 2017: a 3-megawatt project outside Westover Air Reserve Base, and a 2-megawatt landfill project. This results in a total of 11.6 MW of solar in Chicopee's power portfolio.

- Groton Electric Light Department - The former Groton landfill was repurposed in 2016 and now hosts a 9,310-panel solar farm. The project will help the Groton Electric Light Department manage its peak summer load and is able to produce 2.28 megawatts of power – enough to energize approximately 1,000 Groton homes.

- Holden Municipal Light Department - The Holden Municipal Light Department now has solar PV systems on four town buildings. In 2016, the utility installed a 152-kilowatt system on the roof of the Mountview Middle School.

Groton Electric Light Department's new solar farm, located on the former town landfill

Holyoke Gas & Electric Department's Holyoke Dam is part of a hydro system that meets approximately two-thirds of Holyoke's annual electricity needs

PART OF
THE SOLUTION

Municipal utilities have thrived in Massachusetts for more than a century because they are responsive and directly accountable to the customers they serve. They provide superior service at highly competitive rates and have adapted successfully to changes in the electric industry more revolutionary than the ones we face today.

Working with MMWEC, they have developed an independent public power supply that brings many benefits to municipal utility customers, including long-term reliability, price stability and resource diversity.

Municipal utilities provide a benchmark for the quality and cost of electric service. Franklin Delano Roosevelt called it yardstick competition, an important tool in measuring the service of private utilities.

MMWEC and its members are embracing greener and cleaner energy policies, emerging technologies and smart grid initiatives without mandates to do so. Municipal utilities work consistently to adapt their programs and services to changes in the electric industry, which often are driven by customer demand.

The well-documented successes of MMWEC and its member municipal utilities originate with the public power business model, which continues to benefit municipal utilities and the Commonwealth as a whole. As issues rise and fall, this model will ensure that municipal utilities remain as vital, resilient and outstanding participants in an evolving industry.

VITAL
RESILIENT
OUTSTANDING

FINANCIAL STATEMENTS
MASSACHUSETTS MUNICIPAL WHOLESALE ELECTRIC COMPANY

Years Ended December 31, 2016 and 2015

OVERVIEW OF THE FINANCIAL STATEMENTS

MMWEC is a public corporation and a political subdivision of the Commonwealth of Massachusetts formed to be a joint action agency to develop a bulk power supply for its member Massachusetts cities and towns having municipal electric systems (Members) and other utilities. Among other things, MMWEC is authorized to construct, own or purchase ownership interests in energy facilities and to issue revenue bonds for such purposes. MMWEC's ownership interest in energy generation facilities is through various Projects. Pursuant to its General Bond Resolution (GBR), the bonds of any bond issue relating to a Project are secured solely by revenues derived from that Project. Project revenues are derived primarily from Power Sales Agreements (PSAs) with MMWEC's Members and other utilities that are Participants in a Project (Project Participants). MMWEC's bulk power supply program consists of power purchase arrangements, power brokering services, related planning and other financial services.

The accounting records of MMWEC are maintained using the Governmental Accounting Standards Board (GASB), the Uniform System of Accounts of the Federal Energy Regulatory Commission (FERC) and the Generally Accepted Accounting Principles of the United States (GAAP) using the economic resources measurement focus and the accrual basis of accounting. Application of the accounting methods for regulatory operations is also included in these financial statements. This accounting guidance relates to the deferral of revenues and expenses to future periods in which the revenues are earned or the expenses are recovered through the rate-making process, which is governed by the Board of Directors.

MMWEC's financial statements include Statements of Net Position, Statements of Revenues, Expenses and Changes in Net Position, Statements of Cash Flows, Statements of Fiduciary Net Position and Statements of Changes in Fiduciary Net Position. The Statements of Net Position report year-end assets and liabilities based on the original cost adjusted for any depreciation, amortization or unrealized gains/losses as appropriate. The Statements of Revenues, Expenses and Changes in Net Position present MMWEC's operating revenues and expenses incurred as a result of MMWEC's business activity. The Statements of Cash Flows report the cash provided and used for operating activities, as well as investing activities and capital and noncapital related financing activities. The Statements of Fiduciary Net Position report the financial resources available for future benefits for MMWEC's administrative and union pension plans. The Statements of Changes in Fiduciary Net Position reflect the additions, deductions and net increase or decrease in net position held in trust for pension benefits.

MMWEC FINANCIAL ANALYSIS

An analysis of MMWEC's financial position begins with the review of the Statements of Net Position, the Statements of Revenues, Expenses and Changes in Net Position and the Statements of Cash Flows. A summary of MMWEC's Condensed Statements of Net Position is presented in Table 1. The Condensed Statements of Revenues, Expenses and Changes in Net Position are summarized in Table 2 and the Condensed Statements of Cash Flows is summarized in Table 3.

FINANCIAL STATEMENTS

MASSACHUSETTS MUNICIPAL WHOLESALE ELECTRIC COMPANY

MMWEC FINANCIAL ANALYSIS

In 2015, MMWEC implemented the provisions of GASB Statement No. 68, Accounting and Financial Reporting for Pensions – an amendment of GASB Statement No. 27 (GASB 68), which modifies how costs and liabilities associated with pension benefits are measured. As a result of the adoption of GASB 68, certain prior year information has been revised to conform to the current year presentation.

Table 1

Condensed Statements of Net Position

	2016	2015	Restated 2014
		(In Thousands)	
Current assets, less current portions of designated and restricted special funds	$ 97,349	$ 91,552	$ 96,093
Restricted special funds, including interest receivable and current portionof restricted special funds	166,224	169,220	177,731
Other assets	204,906	186,811	178,809
Capital assets	578,337	588,920	593,333
Deferred outflows of resources	4,459	3,408	1,702
Total assets and deferred outflows of resources	$ 1,051,275	$ 1,039,911	$ 1,047,668
Current liabilities, less current maturities of long-term debt and accrued interest	$ 157,188	$ 152,662	$ 174,604
Long-term debt, net of premiums, including current maturities and accrued interest	57,602	116,569	175,162
Noncurrent liabilities	246,405	225,436	200,198
Deferred Inflow of resources	590,080	545,244	497,704
Total liabilities and deferred inflows of resources	$ 1,051,275	$ 1,039,911	$ 1,047,668
Net position	$ -	$ -	$ -

MMWEC FINANCIAL ANALYSIS

Table 2

Condensed Statements of Revenues, Expenses and Changes in Net Position

	2016	2015	Restated 2014
		(In Thousands)	
Operating revenues	$ 265,352	$ 311,774	$ 324,917
Depreciation expense	17,485	16,939	16,588
Other operating expenses	207,111	249,447	268,748
Total operating expenses	224,596	266,386	285,336
Operating income	40,756	45,388	39,581
Investment income	11,063	1,890	10,641
Interest and amortization expense	(2,136)	(2,547)	(2,768)
Increase in amounts payable under terms of the power sales agreements	(49,683)	(44,731)	(47,454)
Total non-operating expenses	(40,756)	(45,388)	(39,581)
Change in net position	$ -	$ -	$ -

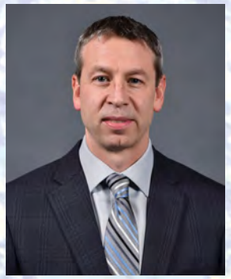
Table 3

Condensed Statements of Cash Flows

	2016	2015	Restated 2014
		(In Thousands)	
Net cash provided by operating activities	$ 84,995	$ 92,003	$ 72,603
Net cash provided by (used in) investing activities	(20,116)	21,143	(10,610)
Net cash used in capital and related financing activities	(79,000)	(84,174)	(89,371)
Net cash provided by (used in) noncapital financing activities	3,142	(8,843)	20,264
Net change in cash and cash equivalents	(10,979)	20,129	(7,114)
Cash and cash equivalents – beginning of year	63,655	43,526	50,640
Cash and cash equivalents – end of year	$ 52,676	$ 63,655	$ 43,526

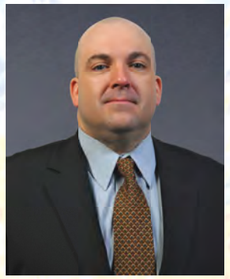
This financial report is designed to provide a general overview of MMWEC's finances. MMWEC's complete audited financial statements are available on the MMWEC website at www.mmwec.org.

DIRECTORS



Jeffrey R. Cady
Chicopee Electric Light
General Manager

John Driscoll
Templeton Municipal
Light & Water Plant
General Manager



Cornelius Flynn
Town of Hampden
Representative

Michael J. Flynn
Chairman, Gubernatorial
Appointee and Wilbraham
Representative

Sean Hamilton
Sterling Municipal
Light Department
General Manager

Kevin P. Kelly
Groton Electric Light
Department Manager

James M. Lavelle
Holyoke Gas & Electric
Department General
Manager

Joseph M. Sollecito
Mansfield Municipal Electric
Department Director

Glenn Trueira
Peabody Municipal Light
Plant General Manager

Luis Vitorino
Town of Ludlow Representative

Charmaine White
Gubernatorial Appointee

OFFICERS & SENIOR MANAGEMENT

Peter D. Dion
MMWEC President

Peter H. Barry
General Counsel

Nancy A. Brown
Assistant Secretary

Ronald C. DeCurzio
Chief Executive Officer
and Secretary

Matthew J. Ide
Treasurer

Stephen J. Smith
Assistant Treasurer

Peggy Bushey
Director of Business
Support &
Administrative
Services

Ronald C. DeCurzio
Chief Executive
Officer

Matthew J. Ide
Executive Director
of Energy & Financial
Markets

Edward Kaczenski
Director of
Engineering &
Generation Assets

Carol A. Martucci
Director of
Accounting & Financial
Reporting

Daniel L. Suppin
Director of
Information
Technology

David Tuohey
Director of
Communications &
External Affairs

MEMBERS & PROJECT PARTICIPANTS

Ashburnham Municipal Light Department*

Boylston Municipal Light Department*

Braintree Electric Light Department

Chicopee Electric Light Department**

Danvers Electric Division

Georgetown Municipal Light Department

Groton Electric Light Department*

Hingham Municipal Lighting Plant

Holden Municipal Light Department*

Holyoke Gas & Electric Department*

Hudson Light & Power Department

Hull Municipal Lighting Plant*

Ipswich Municipal Light Department*

Littleton Electric Light & Water

Mansfield Municipal Electric Department*

Marblehead Municipal Light Department*

Middleborough Gas & Electric Department

Middleton Municipal Electric Department

North Attleborough Electric Department

Paxton Municipal Light Department*

Peabody Municipal Light Plant*

Princeton Municipal Light Department**

Reading Municipal Light Department

Russell Municipal Light Department**

Shrewsbury Electric & Cable Operations*

South Hadley Electric Light Department*

Sterling Municipal Light Department*

Templeton Municipal Light & Water Plant*

Wakefield Municipal Gas & Light Department*

West Boylston Municipal Light Plant*

Westfield Gas & Electric

Pascoag (RI) Utility District

Green Mountain Power Corporation (VT)

Hardwick (VT) Electric Department

Ludlow (VT) Electric Light Department

Morrisville (VT) Water and Light Department

Stowe (VT) Electric Department

Swanton (VT) Electric Department

* MMWEC Member and Participant

** MMWEC Member Only

The Massachusetts Municipal Wholesale Electric Company (MMWEC) is a not-for-profit, public corporation and political subdivision of the Commonwealth of Massachusetts, created in 1976 through an Act of the Massachusetts General Court. MMWEC provides a broad range of power supply, financial, risk management and other services to enhance the competitiveness of Massachusetts municipal utilities. MMWEC also is the operator and principal owner of the Stony Brook power plant, a 527-megawatt, combined-cycle generating station located at MMWEC's Stony Brook Energy Center in Ludlow, Massachusetts.

Copies of this report and supplemental financial information can be obtained, free of charge, by contacting:

Communications and External Affairs
Massachusetts Municipal Wholesale Electric Company
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Ludlow, MA 01056

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Internet: www.mmwec.org

MMWEC

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